

# THE AEROPLANE SPOTTER

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THE HEARKERS' CLUB BULLETIN

Edited by PETER G. MASEFIELD

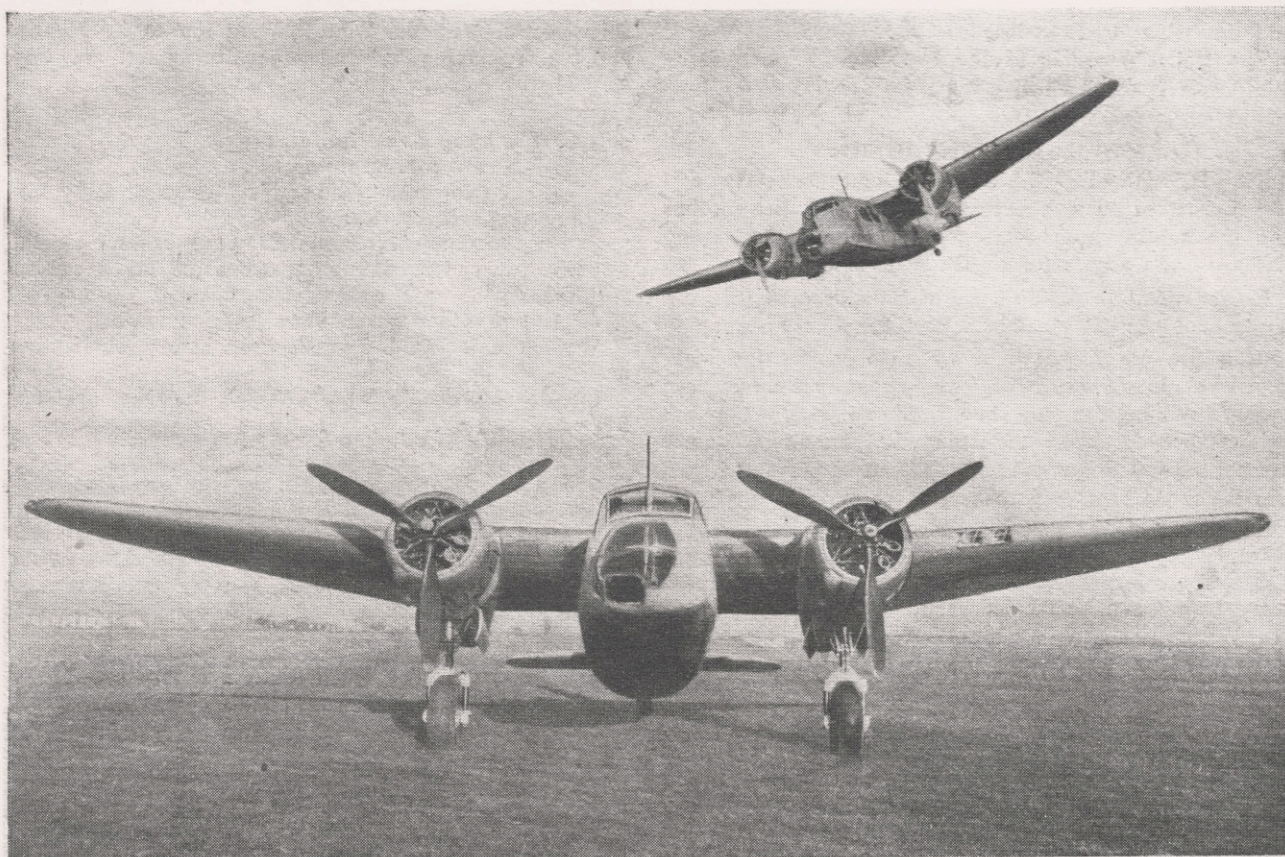
M.A. (Eng.) Cantab; A.F.R.Ae.S.  
Technical Editor of "THE AEROPLANE."

FOR THE ALERT

3<sup>D</sup>

WEEKLY

EVERY THURSDAY



THE BLACKBURN BOTHA—THE NEW RECONNAISSANCE AND TORPEDO-BOMBER FOR THE R.A.F. COASTAL COMMAND.

WERE any proof needed of the enthusiasm for Aircraft Recognition now widespread throughout the country, the floods of letters which have greeted the arrival of the first issues of THE AEROPLANE SPOTTER would have provided it.

Yet amid all this enthusiasm, which embraces all classes of the community, there does still seem to be a general desire for some lead in methods of study.

There are six golden rules for success in aircraft identification. They are:—

(1) Steep yourself in the subject. Learn all you can about each individual aeroplane, whether the points are directly connected with its recognition or not. Adding "glamour" by seeking knowledge of the functions, development and achievements of an aeroplane will help to impress its details on the memory.

(2) Make a scrapbook of cuttings, keeping a separate page for everything you can find about each aeroplane, photographs, silhouettes and descriptions.

(3) When beginning, concentrate on a few aeroplanes at a time and learn them thoroughly before you go on to more.

(4) Watch every aeroplane you see until it is out of sight, even if you know it well. That will help to impress on the mind its characteristics as seen from a distance and at different angles.

(5) When in doubt ask, and keep on asking.

(6) Finally, remember that there is only one certain way to identify an aeroplane and that is to *know* it. Each aeroplane has its own character. It will take time to learn it, but it is worth doing. Practical identification can never be done by reference, but only by knowledge and familiarity.



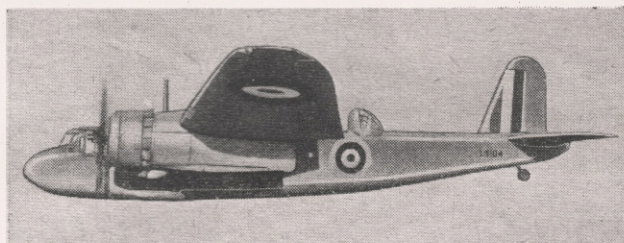
# NEWS OF THE WEEK

## The Blackburn Botha

REFERENCE can now be made to the Blackburn Botha three-seat general reconnaissance and torpedo bomber (two 905 h.p. Bristol Perseus motors), which has been in service for about a year. The Botha is a high-wing monoplane with a tall single fin and rudder, a fairly long nose and a tall pointed gun turret on the fuselage aft of the wings. A distinctive feature is the very sharp forward taper of the outer sections of the wings. It was designed for the Coastal Command to the same general specification as the Bristol Beaufort. It is now also used for training purposes.

Although the Botha is a bigger aeroplane than the Beaufort, it has rather less power, so that its performance, which is still unpublished, is probably of the order of the Blenheim I. The span is 59 ft., length 50 ft. 11½ ins., and the height 18 ft. 3 ins.

The Botha was one of the two "secret" aeroplanes which flew past the Parliamentary Air Display at Northolt



early in 1939 and caused such a furore. The other was the Gloster two-motor fighter, which was not put into production.

Including the Spitfire III, five new aeroplanes have been announced; the Blackburn Botha, the Hawker Tornado single-seat fighter, the Short Stirling four-motor bomber, and the Westland Whirlwind two-motor fighter. We hope to deal with each in due course.

## Assault on Incendiaries

MR. HERBERT MORRISON, Home Secretary and Minister of Home Security, has asked for fire spotters and fire fighters from every family, every house, every business and every factory. The need is urgent.

Enemy air raids usually begin with the dropping of great numbers of incendiary bombs. Each incendiary bomb may start a fire which will light up a target for the high-explosives to follow. Once high-explosives have been dropped nothing can stop them from exploding if they are neither delayed action nor duds. But incendiary bombs are not difficult to put out and they can be prevented from starting target fires by vigilance on the part of everybody.

The Fire Brigades and the A.F.S. are doing magnificent work. They must be left free to fight the big fires. Hence the need for fire parties to guard every building. Incendiary bombs can be tackled easily enough if there is no

delay. The weapons needed are:—

- (i) A stirrup hand pump;
- (ii) A rake to drag a bomb off a roof or away from anything inflammable;
- (iii) A supply of sand and water handy, together with two or three sandbags, two-thirds full, to smother bombs;
- (iv) A ladder reasonably close.

Any Air Raid Warden can advise where to obtain these needs.

In Mr. Morrison's words, "Fall in, the fire-bomb fighters."

## Correspondence.

THE EDITOR thanks all those who have so kindly written to him following the appearance of the first issue of THE AEROPLANE SPOTTER. Their number is so great that he asks indulgence from those who have not yet received an answer. He hopes to reply to all of them during the next few days.

## WEEKLY NOTES FOR SPOTTERS—III

By R. A. Saville-Sneath

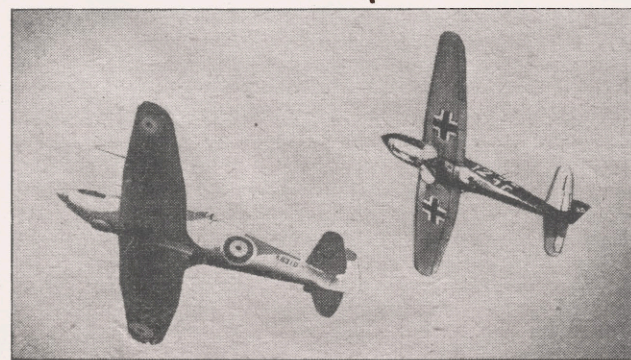
(Member of the Observer Corps and a Founder Member of the Harkers' Club.)

(Last week Mr. Saville-Sneath discussed methods of distinguishing between the Boulton Paul Defiant and the Heinkel He 113, fruitful subjects for confusion. This week he points out differences in the head-on view.)

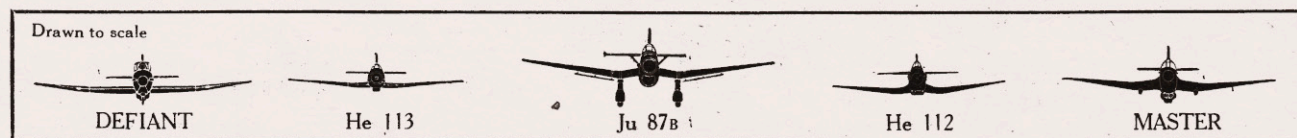
Compared with the plan, the head-on view presents very little difficulty. First of all, there is the same marked difference between the centre section of the wings and the two types. The point at which taper begins (in the plan view) is indicated in the head-on of the Defiant by the start of a slight upward inclination of the wings towards the tips—generally known as dihedral angle.

This feature is also noticed in the head-on view of the He 113, but it begins—as does the wing taper—so much nearer to the engine that there is very little occasion for confusion. Further, this centre section is not quite horizontal—as is that of the Defiant—but inclines slightly downwards towards the tips. This characteristic is generally described as dihedral or negative dihedral angle and, when combined with dihedral, as in the present case, the wing resembles the inverted wing of a gull. The He 113 shows this feature to a very slight degree, much less than in the He 112, from which it is developed, but it is, nevertheless, sufficient to provide a useful recognition point. More clearly defined examples of the inverted "gull wing" are to be seen in the Ju 87, the Ha 139 and the Master.

I scarcely need add that, in the majority of head-on views of the Defiant, the wide glazed gun turret which crowns the fuselage of the larger aircraft should supply the most obvious means of recognition.



CLOSE APPROXIMATION.—The Boulton Paul Defiant (left) and the Heinkel He 113 (right). The aspect ratio of the Defiant is 6.25; that of the He 113 is 6.1. Thus the aspect ratio of the Defiant is slightly higher than that of the He 113 and not the reverse as was printed in error last week.



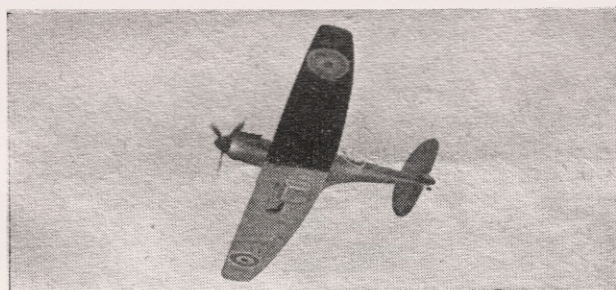


## AIRCRAFT IN THE NEWS—III

## THE SUPERMARINE SPITFIRE MARK III SINGLE-SEAT FIGHTER.

EVER SINCE the prototype of the Supermarine Spitfire first flew in November, 1936, the type has undergone steady development to increase its speed and fighting power. The prototype achieved 342 m.p.h. This was raised in the first production model to 357 m.p.h. and later to 362 m.p.h. When the War began the Spitfire Mk. I single-seat fighter in service had a top speed of 367 m.p.h., and this was raised by 20 m.p.h. with the use of 100-octane fuel.

Now a new version, the Spitfire Mk. III, is in service with the R.A.F. The most noticeable modifications are the clipping of the wings by the removal of the detachable wing tips. This



reduces the span by 3 ft. 8 ins. to 33 ft. 8 ins., the wing area by about 7 sq. ft. to about 235 sq. ft., and changes the appearance completely. The tail wheel is now fully retractable, and the Rolls-Royce Merlin has been boosted to give greatly increased power. Because of this rise in power, the depth of the radiator has had to be increased. As a result of all these modifications, the top speed has been raised to around the 400 m.p.h. mark, as Sir Kingsley Wood announced many months ago. Spitfire Mark III fighters are in service with shell-firing cannon, which make them even more deadly against the latest heavily armoured German aeroplanes.

Curiously enough, the flying characteristics are little altered by the drastic modifications, and the Spitfire III is stated to alight as sweetly as the Spitfire I.

**DIMENSIONS.**—Span, 33 ft. 8 ins.; length, 30 ft. 4 ins.; height, 11 ft. 5 ins.; wing area, 235 sq. ft.; aspect ratio, 4.82.

**PERFORMANCE.**—Top speed, slightly more than 400 m.p.h.

**POINTS OF RECOGNITION.**—Square cut wings of low aspect ratio with curved trailing edge. Deep radiator under starboard wing, oil cooler under port wing. Rounded nose cowling. Small fin and rudder. Tail wheel retracted. Confusion with the Messerschmitt Me 109 can be avoided by looking for the curvature of the wings, the elliptical tailplane and the absence of tail wheel.

## CIVIL IDENTIFICATION—III

## THE DE HAVILLAND D.H. 95 A



KNOWN as the Dominie to the R.A.F., which uses it as a wireless and navigational trainer, the D.H. 89A, the Dragon Rapide, is also one of the most widely used British civil transport aeroplanes. It has been used on internal air routes in Great Britain and in many countries in the World since it was first introduced in 1934. From the outbreak of War it has been used for communications duties. Powered by two 200 h.p. D.H. Gipsy Six motors, the D.H. 89A is an equal span braced

THE DRAGON RAPIDE (Civil)  
OR DOMINIE (R.A.F.)

biplane with tapered wings. It is of wood construction with fabric covering. The undercarriage is fixed but the wheels have faired "trousers." Its tail unit has a single fin and rudder.

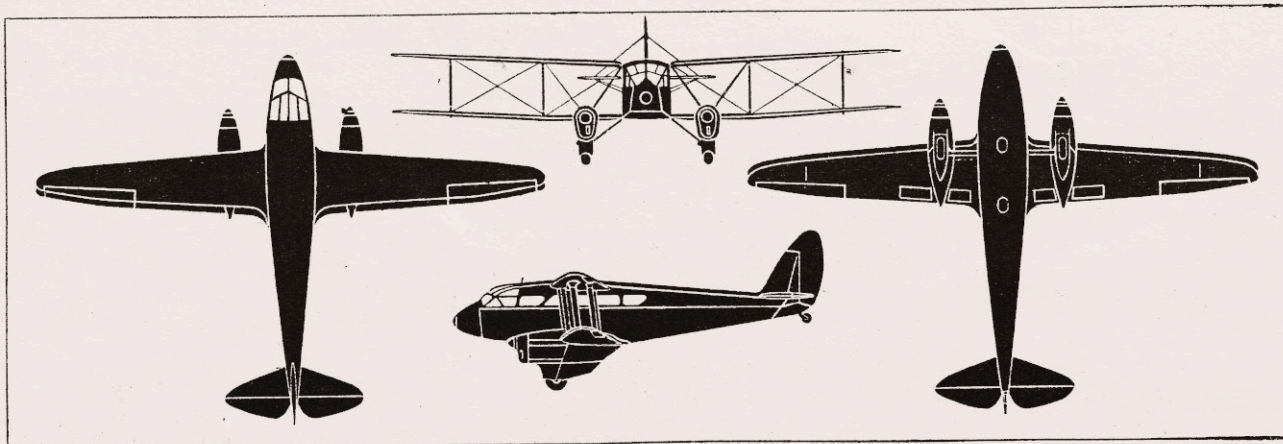
The D.H. 89A has accommodation for eight passengers and the single pilot has his cabin in the narrow nose.

**DIMENSIONS.**—Span, 48 ft.; length, 34 ft. 6 ins.; height, 10 ft. 3 ins.; wing area, 336 sq. ft.; aspect ratio, 11.7.

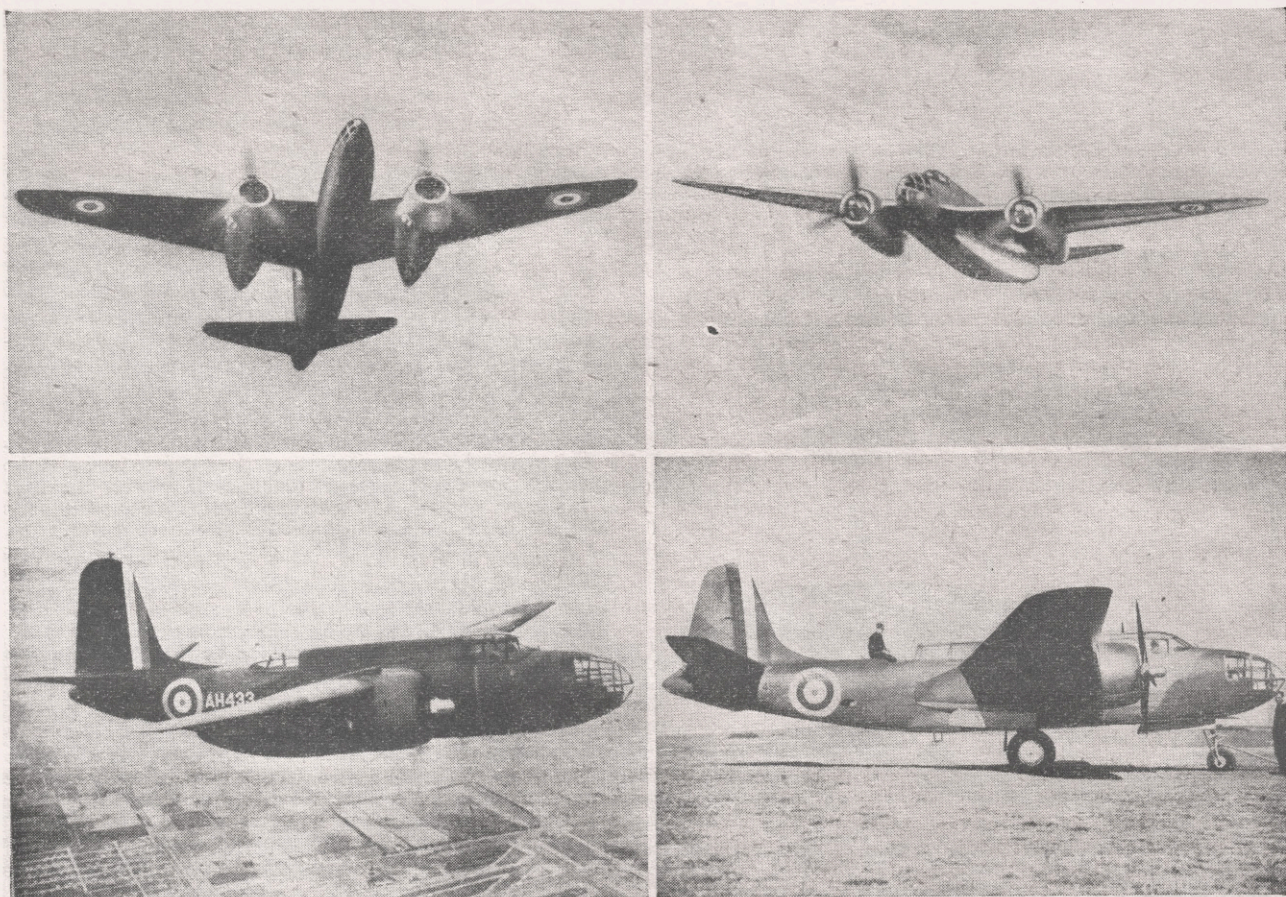
**WEIGHTS.**—Empty, 3,230 lb.; loaded, 5,500 lb.

**PERFORMANCE.**—Top speed, 157 m.p.h. at 1,000 ft.; range, 556 miles at 132 m.p.h.; initial climb, 867 ft. per min.; service ceiling, 16,700 ft.

**POINTS OF RECOGNITION.**—Equal span biplane with tapered wings and very pointed tips. Almost straight trailing edges, slightly swept back leading edges, single outer interplane struts. Wide fuselage and pointed nose, with sharply sloping line from roof in side view. Single fin and rudder. Inverted in-line motors mounted in front of lower wings. Undercarriage legs faired into motor nacelles.







*THE BOSTON*—Designated the DB-7 by its makers the Douglas Aircraft Company Inc.; the Douglas A-20 by The U.S. Army and The Boston by the R.A.F., this mid-wing tricycle bomber has a top speed of 325 m.p.h. with two 1,050 Pratt and Whitney Twin Wasp motors. The bottom left photograph is of a Boston III which has 1,100 h.p. Wright Cyclone motors and a higher performance.

TWO Junkers 86K bombers (two 880 h.p. B.M.W. 132Dc radial motors each) and a de Havilland D.H.86 Dragon (two 130 h.p. de Havilland Gipsy Major I motors) were last week's recognition tests.

The Ju 86K is an obsolescent type but is known to be on some French aerodromes at present and has been seen over the North Sea. It can be recognised in the view shown by three prominent features. They are: (i) The long, deep and narrow nose with overhanging gun cupola, (ii) the low wings of marked dihedral and sharply tapered, and (iii) the typical Junkers "double wing" trailing-edge flaps with daylight between them and the wing. The twin

## Aircraft Recognition

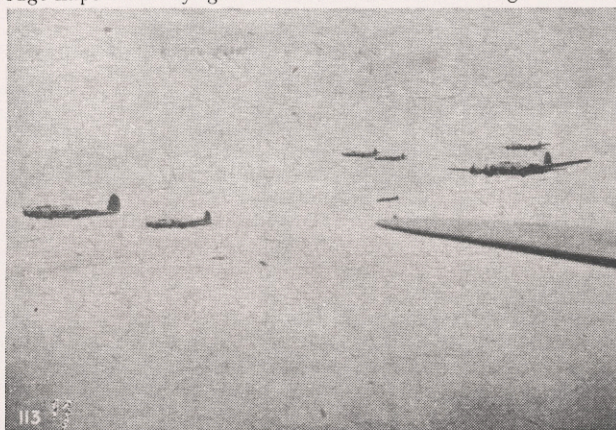


LAST WEEK'S PROBLEMS—Left, Ju 86Ks; right, a Dragon.

finns and rudders on the rectangular tailplane confirm the identification. Nearly all the Ju 86Ks now in service are believed to have the B.M.W. radial motors in place of the less powerful Jumo 205 Diesel in-line motors which were formerly used.

The D.H. Dragon is the forerunner of the Dragon Rapide, or Dominie as it is called by the R.A.F. The Dragon can be recognised by almost untapered square-

cut wings, by the slab-sided fuselage with a blunter nose than the Rapide and by the fixed spatted undercarriage not visible in the photograph shown. The Dragon is an eight-seat civil transport still used for communications work.



FOR IDENTIFICATION III—Two more photographs to give practice in the recognition of allied and enemy aeroplanes. What they are and notes on their characteristics will be published with two more photographs next week.



# THE HEARKERS' CLUB

Members of the Observer Corps wishing to form new Harkers' Clubs should consult their Observer Group Officers. Mr. H. James Lowings Organising Secretary, 34 High Street, Guildford, will be glad to advise on any problems which arise about the formation of new Clubs. Hon. Secretaries of Harkers' Clubs are asked to send their reports of Club Meetings and Forthcoming Events direct to the Editor, "THE AEROPLANE SPOTTER," in small and frequent doses for inclusion in this page.

## HEARKERS' CLUB No. 3 (HENDON)

Hon. Sec.: A. Laws, 3, Elers Road, Ealing, W.13.

Two very successful meetings were held during December. The first on the 22nd, at the Sugar Loaf Hotel, Dunstable, was for the benefit of those members who have not had the opportunity of attending a previous meeting. There was an excellent attendance of 61. We were very pleased to welcome a number of visitors from No. 12 Group and from the local Home Guard.

Our energetic and enthusiastic Competitions Officer, Mr. J. G. Miller, opened the meeting with a talk on the work and aims of the Club, following up with an illustrated talk on "The latest types of Military Aircraft in Use with the R.A.F." Mr. Leonard Taylor provided the second talk and in his usual clear and methodical way, dealt with "Civil Aircraft Now in Use for Military Purposes."

**THIRD GRADE TEST.**—This part of our programme always appears to be the most popular feature, and the high percentage of "passes" is evidence of real enthusiasm. Mr. W. H. Cooper of L2 obtained full marks and the following passed with 25 points and over:—

J. Sinfield	A1	G. M. Barnes	L1
A. Williams	A3	W. B. Hullah	L2
E. S. George	B1	A. Kingham	L3
C. J. Patrick	B1	J. A. Ladds	L3
F. Shepherd	B1	L. E. Muckleston	L3
L. Taylor	B1	S. J. Little	L3
D. Williamson	B1	F. R. Stearn	M2/12

The second meeting of the month was held on the 29th at the Public Library, Hendon. Mr. Saville-Sneath provided, in his inimitable way, a most instructive talk on "Mnemonics," which everybody thoroughly enjoyed.

**THIRD GRADE TEST.**—The competition was again well supported. The following passed with 25 marks and over:—

A. Bird (full marks)	C2	D. V. Skinner	G1
R. A. Brampton	C2	W. Webster	G1
A. J. Child	C2	F. E. Britain	G2
E. G. Heath	C2	R. Ormes	K2
R. A. S. Lloyd	C2	W. Woodhall	L2
T. F. White	D2	L. S. Price	K2
W. J. Giddins	F1		

**EXAMINATION FOR SECOND GRADE.**—This was conducted by our Competitions Officer, Mr. J. G. Miller. From the 63 silhouettes selected, two-thirds were new types shown plan or side view and one-third head-on views from types included in the third grade test.

**Results.**—Messrs. K. R. Ashby and E. L. West, both of G1, are complimented on obtaining "possibles." The following passed with 50 points and over:—

A. P. Hamilton	A.O.G.O.	E. J. J. Oldham	G1
L. V. Owers	A.O.G.O.	G. P. Orme	G1
P. Brough	C2	R. C. Hayman	K2
A. Laws	D2	F. S. Jeffery	L1
F. L. Norman	D2	F. Heley	L1
C. H. A. Chaplin	F1	D. G. Warwick	C3
L. R. Lindsay	F1	J. A. Coubrough	G2
S. E. Worley	F1		

Since our inaugural meeting last August we have held seven meetings, all of which have been very well attended, and the Committee thank all those Members who have given their regular support. We look forward to a New Year full of interesting gatherings and every effort will be made to make our programmes as attractive and as instructive as possible. We hope to welcome many new members from Posts that have not yet been represented, and of course from our Centre.

Watch "Forthcoming Events" for future fixtures.

## HEARKERS' CLUB No. 5 (EVESHAM)

Hon. Sec., F. Dobson, Farnham House, Broadway, Worcestershire.

**THE NEXT MEETING** will be held at Prince Henry's Grammar School, Evesham, on Sunday, Jan. 19, at 10.30 hrs.

### Agenda

1. General Business.
2. The Chairman will give a brief report on negotiations pending between the Harkers' Club Council and Observer Corps Headquarters.
3. Mr. C. A. Lakin, O.G.O. Group 5, will give a lecture on "Identification."
4. Instructional sound films featuring Do 215, He 111 MkVa, Me 110 and Ju 88, if time permits.

There will be no Competition this month. Members are asked to note change of Meeting Place.

## HEARKERS' CLUB No. 6 (CROWTHORNE)

Hon. Sec., L. M. Leakey, "St. Lawrence," Crowthorne, Berkshire.

**A MEETING** was held on Sunday, Jan. 5, at the usual rendezvous, Wellington College, and about 36 had assembled to hear a talk by Peter Masefield on the British and German Air Forces. Such a talk, covering so wide a field, must leave behind a certain amount of mental indigestion, but it was, as usual, perfectly informative and delightfully interspersed with those anecdotes for which the speaker is so well known, and the fact that two other items of the advertised programme had to be cut out, worried none of those present: we were enjoying ourselves too much. After tea, a 3rd Grade Test was held. Several present again scored the necessary points to qualify. The following passed for the first time:—

Major R. G. Gardner and Messrs. A. Brocks and C. Hatch (4.N.1), S. G. Bentley (4.M.3) and J. Steer (4.N.2).

The last named and F. Rees scored full points.

The meeting decided that members of the Home Guard and the A.R.P. Services, Roof Spotters and people connected with the Aircraft Industry in any capacity, would, when sponsored by Observers, be very welcome at the meetings.

At this meeting, the following became active members of the club: Major R. G. Gardner and Messrs. A. Brocks and C. Hatch (4.N.1) and Mr. T. E. Cowley (4.M.3).

## HEARKERS' CLUB No. 11 (OTLEY)

Hon. Sec.: F. D. Marshall, "Deerstons," Bolton Abbey, near Skipton.

**THE inaugural meeting** was held on Sunday, Jan. 5, at the Westbourne Hotel, Otley. Mr. James Downs, A.O.G.O., was in the Chair. Capt. H. Jowett, O.G.O., Capt. J. Barrett, A.O.G.O., and 27 representatives of Posts in Group 8 were present.

The following Officers were elected:—

President, Capt. H. Jowett, O.G.O.

Vice-Presidents, Mr. James Downs, A.O.G.O., and Capt. J. Barrett, A.O.G.O.

Chairman, Mr. H. Giffard Smith, T.2.

Hon. Secretary, Mr. F. D. Marshall, T.1.

Hon. Treasurer, Capt. F. W. Bailey, V.1.

Hon. Auditor, Mr. A. Swales, Q.2.

Hon. Attendance Officer, Mr. H. P. Moorhouse, V.3.

Hon. Competition Officer, Mr. Hancock, Z.3.

The meeting closed with the Third Grade Harkers' Test and the following obtained 25 or more correct out of 31 silhouettes shown and were thus successful:—F. W. Roberts, V.4; R. Hudson, V.4; L. Marsden, T.1; H. Seed, S.3; G. Smith, T.2; G. Robinson, V.3; H. Morris, S.1; Park Guild, V.4; E. Wilson, S.1; L. M. Storey, S.3; A. W. Scriven, Z.1; F. D. Marshall, T.1; R. Glover, S.1; H. Malir, V.3.

## FORTHCOMING EVENTS

Jan. 19.—Evesham.—Harkers' Club No. 5 (Evesham).—Meeting at Prince Henry's Grammar School, Evesham.—Talk by C. A. Lakin on "Identification," and films.—10.30 hrs.

Jan. 19.—Glastonbury.—Harkers' Club No. 10.—Talk by Wing Commander Haynes on "Aircraft Identification." At Glastonbury Police Court.—10.30 hrs.

Jan. 25.—Guildford.—Harkers' Club No. 1 (Guildford).—Annual General Meeting at Guildford Technical College, Stoke Park, and talk by Peter Masefield on "The Evolution of the Single-seat Fighter, 1913-1941."—14.30 hrs.

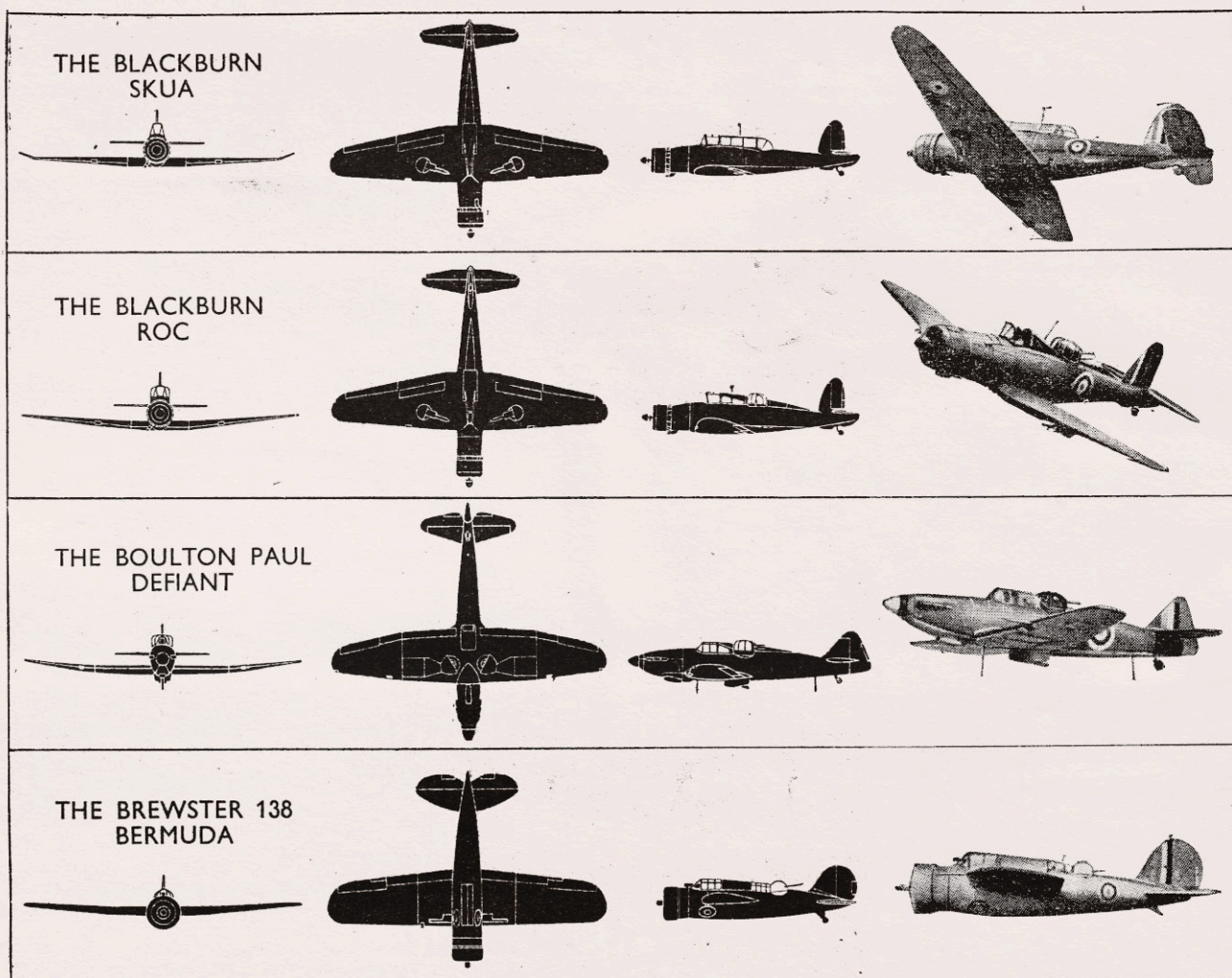
Jan. 26.—Hendon.—Harkers' Club No. 3 (Hendon).—"The Aeroplane as a Family," by J. H. Stevens, Jr. Third Grade Test and Interpost Recognition Competition.—Hendon Public Library.—10.30 hrs.

Feb. 9.—Bishops Stortford.—Harkers' Club No. 3 (Hendon).—Talk by Peter Masefield on "The Evolution of the Single-seat Fighter, 1913-1941," and by J. G. M. Miller on "New Types of Aeroplanes in the R.A.F."—At the Falcon Hotel.—10.00 hrs.



## AIRCRAFT COMPARISON—III.

## TWO-SEAT FIGHTERS OF THE ROYAL AIR FORCE AND FLEET AIR ARM



**BACK TO AN OLD TRADITION**—After being dropped for many years the two-seat fighter is reappearing in increasing numbers following a tradition founded by the Bristol Fighter. The aeroplanes shown above are those at present in service with British Air Forces and include the American Brewster Bermuda.

## THE SPOTTER'S GLOSSARY OF AERONAUTICAL TERMS

**AIRCRAFT**.—A generic term for all types of flying machines, both heavier than air and lighter than air. The term "aircraft" should only be used collectively and not in the singular. To speak of "an aircraft" is wrong. "An aeroplane," "a gyroplane" or "an airship" is right. "A number of aircraft" is correct but is not specific; "a number of aeroplanes" or "a number of gyroplanes" is preferable.

The term "aircraft" includes aeroplanes, gyroplanes, helicopters, ornithopters, kites, gliders, airships and balloons. The word "aircraft" should be used only when the type of flying machine, whether aeroplane, gyroplane or airship is unknown.

**AIR INTAKE**.—The scoop through which air is fed to the induction system of an aero-motor. Forward facing air-intakes give a degree of supercharge from the forward speed of the aeroplane.

**AIR LINE**.—A concern operating transport aircraft over an air route.

**AIR LINER**.—A slang term for a transport aeroplane.

**AIRPLANE**.—A word of illegitimate descent used by the Americans, the more illiterate English and Lord Beaverbrook to denote AEROPLANE.

A6

**AIR POCKET**.—An erroneous term used by ignorant people to describe the effect of thermal currents which cause "bumps" to a flying machine passing through them.

**AIRPORT**.—An aerodrome provided with Customs amenities and used as a station on a commercial airway.

**AIR ROUTE**.—A definite route between two or more aerodromes.

**AIRSCREW**.—All types of screws with helical blades designed to rotate in air and more particularly power-driven screws designed to produce thrust by rotation in the air. The term includes pushers and tractors. The term "propeller" is properly used only for pusher airscrews. Airscrew slip is the ratio of the actual advance per revolution of an airscrew to the theoretical advance per revolution. Airscrew efficiency is an expression of this ratio, normally about 82 per cent.

**AIRSHIP**.—A mechanically driven aerostat (craft lighter than air). Includes rigid airships, semi-rigid airships and non-rigid airships.

**AIR SCOOP**.—A scoop through which air is taken into the ballonets of a balloon or an airship by wind pressure.

**AIRSPEED**.—The speed of a flying machine or airship relative to the air as distinct from its speed relative to the ground. Thus an aeroplane flying at 200 m.p.h. air speed against a 50 m.p.h. wind will have a ground speed of only 150 m.p.h.

**A.S.I.**—Common abbreviation for an Air Speed Indicator.

**AIRWAY**.—An air route with ground organisation.

**AIRWORTHY**.—A term used to denote that an aeroplane has been examined and passed as safe for flying. A certificate of airworthiness must be held by every British civil aeroplane.

**ALIGHTING**.—The act of making contact with the ground or water. Commonly called **LANDING**.

**ALIGHTING GEAR**.—All parts of an aerodyne (except the hull of a flying-boat) which support it on land or water. The undercarriage or floats of an aeroplane, sometimes called the chassis.

**ALTIMETER**.—An instrument, usually an aneroid barometer, graduated to indicate height above a given datum, usually sea-level.

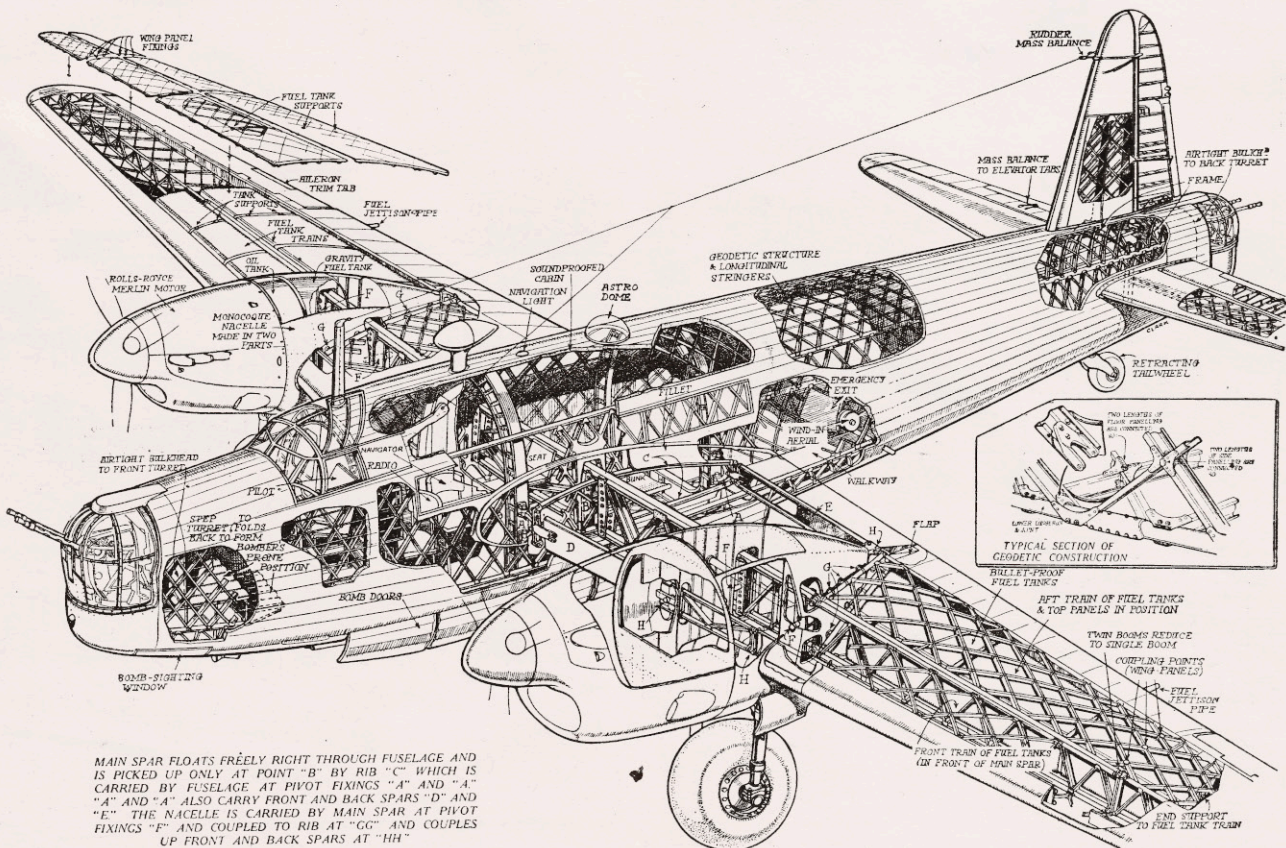
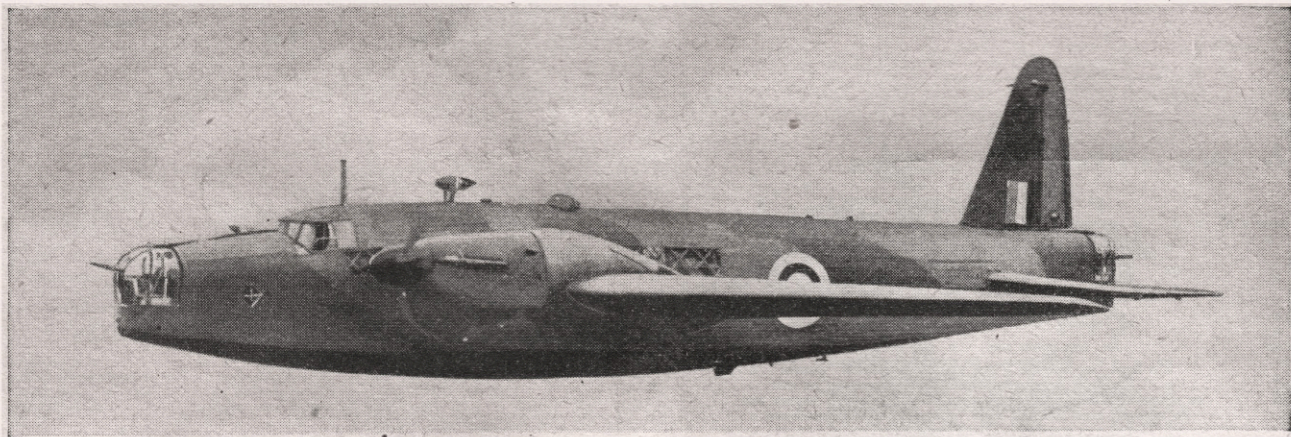
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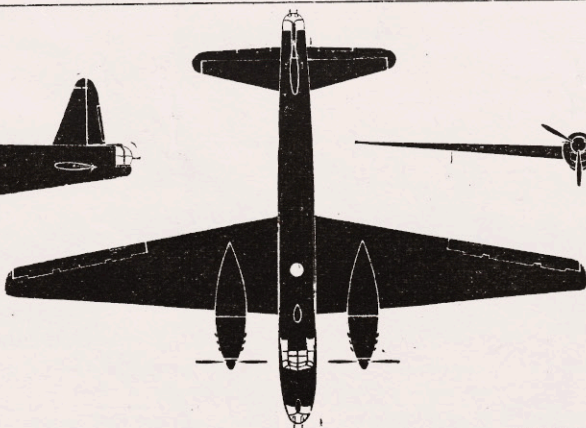
AEROPLANES IN DETAIL—III

THE VICKERS-ARMSTRONGS WELLINGTON MK II BOMBER

(Two 1,145 h.p. Rolls-Royce Merlin X motors)



Span .. 86 ft. 2 in.  
Length .. 64 ft. 7 in.  
Height .. 17 ft. 5 in.  
Loaded weight (1a) 29,500 lb.

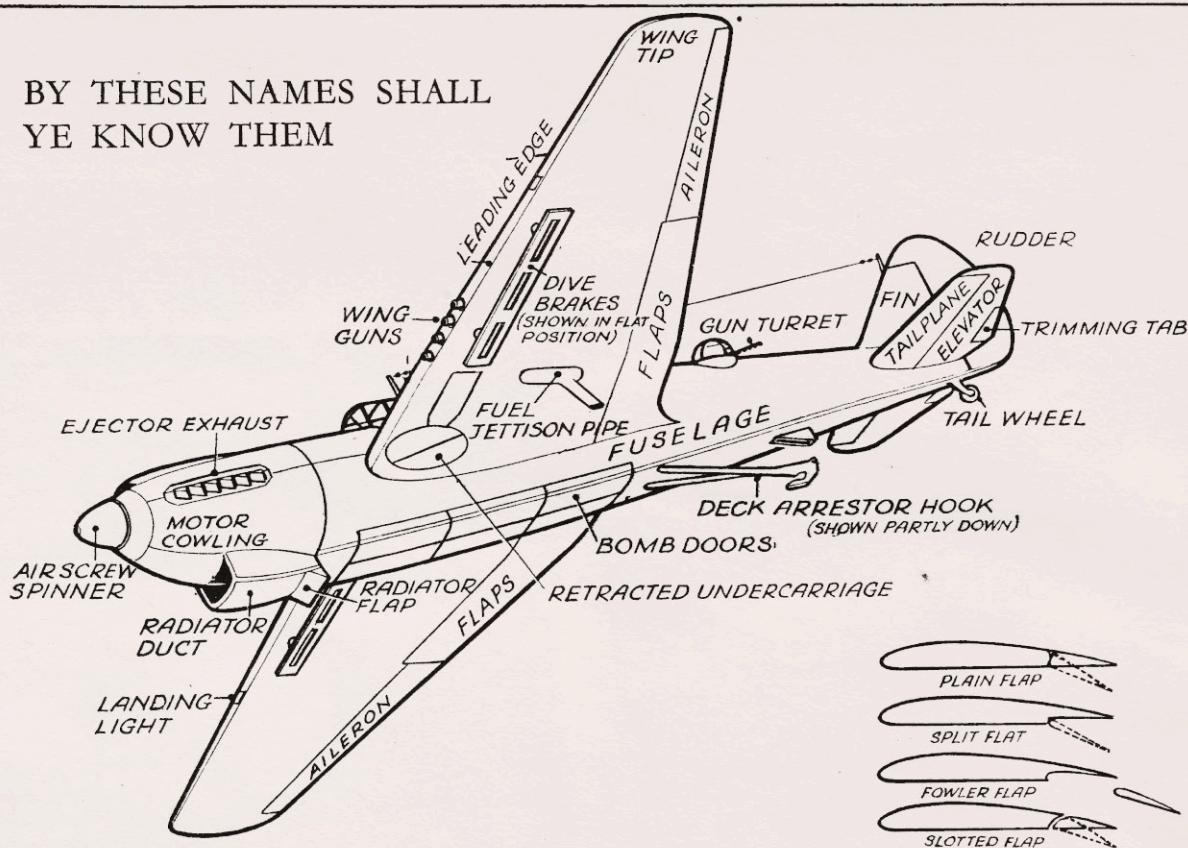


Wing area 840 sq. ft.  
Top speed (1a) 250 m.p.h.  
at 15,500 ft.  
Initial climb (1a) 1,120 ft.  
per min.

(Drawing copyright "The Aeroplane.")



## BY THESE NAMES SHALL YE KNOW THEM



AERONAUTICAL TERMS—II—The parts of a typical single-motor monoplane with single fin and rudder.

### GERMAN AEROPLANES OVER GREAT BRITAIN

IN nearly 18 months of War some 26 types of German aeroplanes have been observed over the British Isles or round our coasts. The list is as follows. Should anyone have additions to make we would be glad to hear of them, together with the place and approximate date on which they were seen.

Arado Ar 196 float-seaplane.  
Blohm and Voss Ha 139 float seaplane.  
Blohm and Voss Ha 140 float-seaplane.  
Dornier Do 17 bomber.  
Dornier Do 18K flying-boat.  
Dornier Do 24 flying-boat.  
Dornier Do 26 flying-boat.  
Dornier Do 215 bomber.

Focke Wulf Fw 200K Condor bomber-transport.  
Gotha Go 149 trainer.  
Heinkel He 49 float-seaplane.  
Heinkel He 59 float-seaplane.  
Heinkel He 60 float-seaplane.  
Heinkel He 111K Mk IIa bomber.  
Heinkel He 111K Mk Va bomber.  
Heinkel He 113 fighter.  
Heinkel He 114 float-seaplane.

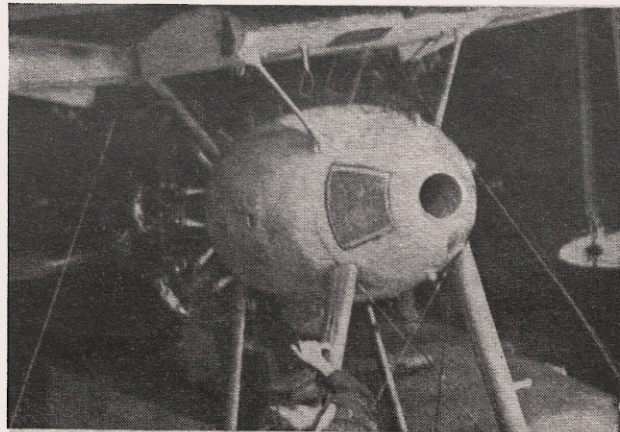
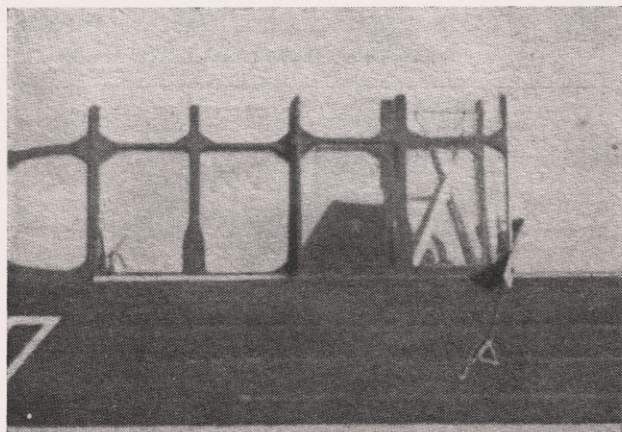
Heinkel He 115 float-seaplane.  
Henschel Hs 126 Army Co-operation monoplane.  
Junkers Ju 86K bomber.  
Junkers Ju 87B dive-bomber.  
Junkers Ju 88-A1 dive-bomber.  
Junkers Ju 90 bomber.  
Messerschmitt Me 109 fighter.  
Messerschmitt Me 110 fighter.  
Messerschmitt Me Jaguar bomber.

### Mental Aerobatics—III

SATTERLEY took his place at the controls and with a final wave to the ground crew opened both throttles and took off. Ahead of him Leakey settled himself in his turret and looked over his Vickers gun. Three hours later Adlington called up on the "Inter-comm" that an Me 110 was on the tail. The enemy

machine tried a long deflection shot and put a shell through one of the rudders. But as he attempted to close, the four Brownings from the tail brought him down in flames. In what aeroplane were Satterley, Leakey and Adlington flying?

Solution to Mental Aerobatics II—Messerschmitt Me 110.



WHERE AND WHAT? Two more posers to test detailed knowledge. The problems last week were (left) the inverted nose of a Douglas DC-2 and (right) the nose of a Fairey Albacore.

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